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Современные языки программирования

В статье описываются наиболее известные языки программирования, рассматриваются их особенности и сферы применения. Такая профессия как программист сегодня является весьма востребованной: навыки программирования пользуются высоким спросом, а должность программиста хорошо оплачивается. Из данной научной статьи читатели смогут выделить достоинства и недостатки представленных языков и, возможно, выбрать самый подходящий для изучения.

The modern programming languages

The development of information technologies in today's world means the evolvement of IT-service systems based on powerful hardware and latest infocommunication technologies. Computers are used in many areas of our life, using tons of specialized supporting software. As a result, a high demand on IT-experts can be seen. The market continues to expand in multiple dimensions, including the appearance of new fields of work.

There are hundreds of programming languages in use today. But how should we understand which one to use? One can easily get lost in the diversity while looking for a language that would be the most suitable for specific purposes.

Let's look at what the most popular programming languages are nowadays, their capabilities, area of applying, current demand and the direction they are headed towards.

1. Java

Java is one of the most popular languages for the backend development of modern corporate web applications. Java is an object-oriented programming language developed by Sun Microsystems in 1990,

which is minimally dependent on the application. It works on the principle of "create once - use everywhere", that is, in the preparation of the code in the future, this code becomes independent of the system in which you use it. With Java, as well as based on it frameworks, developers can build scalable web applications for a wide range of users. Java is the main language used for developing applications for Android smart phones and tablets.

2. JavaScript

Every modern website uses JavaScript. JavaScript is a programming language that runs on the client browser and processes the commands on the end user's computer, not the server, resulting in reduced server load and increase the speed of the application, created by Netscape. Much of its syntax is taken from the language C., but with the language Java. It is a key language for creating interactivity and animation of the site or building a user interface with one of a dozen popular JavaScript frameworks. JavaScript interpreter is built into Google Chrome, Safari, Adobe Acrobat and Reader, as well as Adobe Creative Suite

3. C #

C # was developed in 2000 and is the basic language for the development of platforms and services of Microsoft. Whether it is the development of modern web applications using Azure and NET applications for Windows «devices» or powerful "desktop" applications for business, C # is the fastest way to use all that to offer Microsoft. Furthermore, it is one of the major languages for game development engine Unity. C # combines the reliability of C ++ with additional features of Java. Therefore, if you are familiar with Java, you can easily switch to C # and vice versa. From this point of view, the C # language is worth learning if you plan to develop applications for Windows platforms.

4. PHP

Do you write a Web application to work with data? PHP language along with databases (e.g., MySQL) is an important tool for creating modern Web applications. Most developed on PHP sites are focused on a large amount of data. It can be directly embedded in the HTML source code of the document, rather than a single file, which makes it a popular programming language among web developers.

This is also an underlying technology of powerful content management systems like WordPress.

5. C ++

The financial industry has always valued professionals who know C++. A significant part of the exchange and brokerage infrastructure were created just using that language. It is an ideal choice for the development of powerful "desktop" software, games with hardware acceleration, as well as applications for PC, consoles and mobile devices that require large amounts of memory to run. This is one of the most powerful programming languages; most of the operating systems that we use today, are written on it.

6. *Python*

Python was conceived in the late 1980s and its implementation began in December 1989 by Guido van Rossum at Centrum Wiskunde & Informatica (CWI) in the Netherlands.

Python is a widely used high-level, general-purpose, interpreted, dynamic programming language. Its design philosophy emphasizes code readability, and its syntax allows programmers to express concepts in fewer lines of code than possible in languages such as C++ or Java. The language provides constructs intended to allow writing clear syntax both on a small and a large scale.

Python supports multiple programming paradigms, including object-oriented, imperative and functional programming or procedural styles.

It is heavily used in education sector, web and internet development, scientific and numeric computing as well as in big data and machine learning algorithms development.

7. *C*

C is a compiled, procedural language developed in 1972 by Dennis Ritchie for the UNIX operating system. C is the predecessor to more complex programming languages like Java and C#. It was designed to be compiled using a relatively straightforward compiler, to provide low-level access to memory, and introduce language constructs that map efficiently to machine instructions, requiring a minimum of run-time support

Although C is a relatively old language, it is still widely used for system programming, writing other programming languages, and in embedded systems.

8. *SQL*

SQL was initially developed at IBM by Donald D. Chamberlin and Raymond F. Boyce in the early 1970s.

SQL is a database query language (SQL stands for Structured Query Language) that's ideal when operating with data. SQL lets you transfer helpful data from massive databases. Nearly every app has a backend

database, and SQL is the language that helps you to interact with that data. The scope of SQL includes data insert, query, update, delete, schema creation and modification, and data access control queries.

Database technologies such as MySQL, PostgreSQL and Microsoft SQL Server are used by big and small companies, hospitals, banks, and universities.

9. Ruby

Ruby is an interpreted, object-oriented language written by Yukihiro Matsumoto in 1995. It is one of the most popular object-oriented languages in the world. Everything is an object in Ruby, even letters and numbers can have method calls.

Ruby is programming language that is simple and aids rapid application development. Ruby is best known for its popular framework Rails (Ruby on Rails) and is used mostly for web programming.

10. Objective-C and Swift

If you're interested in making apps for iOS, you'll need to know Objective-C or Swift.

Swift is a relatively new language and it is becoming more and more common among Apple developers. Creating Swift started in 2010 by Apple engineer Chris Lattner. It brings in the best of C and Objective-C.

One of the biggest hurdles people face when trying to learn Objective-C is its confusing syntax. Swift is designed to have a simpler syntax, in line with other modern programming languages.

Apple's new language Swift is raising in the ranks, but Objective-C is still the recommended starting point for those looking to craft Apple apps for iPhones and iPads.

The capabilities of today's programming languages let developers unleash their potential and build technologies of tomorrow.

If you are a forward looking developer or looking forward to be a developer, it is high time to start learning programming with at least one of the top programming languages.

Список литературы:

1. Какой язык программирования самый востребованный в 2015 году? Автор: Nikolay Drozdev – март 1, 2015. URL: /

- <http://itdistrict.ru/kakoy-yazyik-programmirovaniya-samyiy-vostrebovannyiy-v-2015-godu/#facebook/> (дата обращения: 12.10.2016).
2. Самые востребованные языки программирования в 2015-м. URL: / <https://dev.by/lenta/main/top-15-samyh-vostrebovannyh-yazykov-programmirovaniya-v-2015-m> (дата обращения: 12.10.2016).
3. 15 самых популярных языков программирования по версии GitHub. URL: / <https://habrahabr.ru/post/310262/> (дата обращения: 15.10.2016).
4. Top 10 Most Popular Programming Languages. URL: / <https://www.english4it.com/unit/9/reading/> (дата обращения: 27.10.2016).
5. 10 Most Popular Programming Languages Today. URL: / <http://www.inc.com/larry-kim/10-most-popular-programming-languages-today.html/> (дата обращения: 27.10.2016).
6. The 10 Best Programming Languages for Aspiring Developers. URL: / <http://noeticforce.com/most-popular-programming-languages-best-for-developers/> (дата обращения: 28.10.2016).
7. 3 New Programming Languages You Should Know. URL: / <http://blog.udacity.com/2015/05/3-new-programming-languages-know.html/> (дата обращения: 29.10.2016).
8. The 9 Most In-Demand Programming Languages of 2016. URL: / <http://www.codingdojo.com/blog/9-most-in-demand-programming-languages-of-2016/> (дата обращения: 30.10.2016).

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Моделирование системы связи с эффектом межсимвольной интерференции (МСИ) в программном пакете Matlab Simulink.

В данной статье будет описана модель системы связи с эффектом межсимвольной интерференции, возникающего после прохождения